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Quality Engineering Test Report

SERIES: PS-65 60W WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY OPEN FRAME TYPE

SAMPLE:

A.PS-65-5	5V / 12A	D. PS-65-24	24V / 3A
B.PS-65-12	12V / 5.2A	E. PS-65-48	48V / 1.5A
C.PS-65-15	15V / 4.2A		

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A:65.85VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: A: $\pm 1\%$ O/P:FULL LOAD B: $\pm 1\%$ C: $\pm 1\%$ D: $\pm 1\%$ E: $\pm 1\%$	A: $\frac{-0.12\%}{\%} \sim 0\%$ B: $0\% \sim 0\%$ C: $0\% \sim 0\%$ D: $0\% \sim 0\%$ E: $0\% \sim \frac{0.01\%}{\%}$	P
3	LOAD REGULATION	I/P:230VAC SPEC: A: $\pm 3\%$ O/P: B: $\pm 2\%$ MIN. TO FULL LOAD C: $\pm 2\%$ D: $\pm 2\%$ E: $\pm 2\%$	A: $\frac{-0.24\%}{\%} \sim \frac{+0.36\%}{\%}$ B: $\frac{-0.05\%}{\%} \sim \frac{+0.05\%}{\%}$ C: $0\% \sim 0.04\%$ D: $\frac{-0.02\%}{\%} \sim 0\%$ E: $\frac{-0.01\%}{\%} \sim \frac{+0.01\%}{\%}$	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: A: $\pm 3\%$ O/P: B: $\pm 2\%$ MIN. TO FULL LOAD C: $\pm 2\%$ D: $\pm 2\%$ E: $\pm 2\%$	A: $\frac{-0.5\%}{\%} \sim \frac{+0.24\%}{\%}$ B: $0\% \sim \frac{+0.1\%}{\%}$ C: $0\% \sim \frac{+0.04\%}{\%}$ D: $\frac{-0.02\%}{\%} \sim \frac{+0.02\%}{\%}$ E: $0\% \sim \frac{+0.03\%}{\%}$	P
5	RIPPLE & NOISE	I/P:230VAC SPEC: A:100mV O/P: FULL LOAD B:100mV C:100mV D:100mV E:100mV	A: <u>66mV</u> B: <u>77mV</u> C: <u>21mV</u> D: <u>28mV</u> E: <u>43mV</u>	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.9A O/P:FULL LOAD	<u>A:0.7A</u>	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	<u>A:32.39A</u>	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC:-5%~+10% O/P:MIN. LOAD A:4.75V~5.5V B:11.4V~13.2V C:14.25V~16.5V D:22.8V~26.4V E:45.6V~52.8V	A:4.28V~6.18V B:9.33V~13.73V C:12.62V~18.85V D:17.23V~27.6V E:38.8V~53.6V	P
9	SET UP TIME	I/P:230VAC SPEC:800ms O/P:FULL LOAD	<u>A:552.86mS</u>	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	<u>A:93.66mS</u>	P

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11	EFFICIENCY	I/P:230VAC SPEC: A:76% O/P: FULL LOAD B:79% C:79% D:80% E:80%	A: <u>76.5%</u> B: <u>80.24%</u> C: <u>81.83%</u> D: <u>83.25%</u> E: <u>83.95%</u>	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC: O/P: TESTING A: 73~105W B: 73~105W C: 73~105W D: 73~105W E: 73~105W	A: <u>78.84W</u> B: <u>83.56W</u> C: <u>78.74W</u> D: <u>93.44W</u> E: <u>97.67W</u>	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:115%~135% O/P:TESTING A : 5.5V~6.75V B : 13.2V~16.2V C : 16.5V~20.25V D : 26.4V~32.4V E : 52.8V~64.8V	A: <u>6.20V</u> B: <u>14.08V</u> C: <u>19.03V</u> D: <u>28.3V</u> E: <u>53.7V</u>	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG-<0.5mA N-FG-<0.5mA	B: L-FG:0.4 mA N-FG:0.4mA	P
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC/50MOhms MIN. I/P-O/P 500VDC/50MOhms MIN. I/P-FG 500VDC/50MOhms MIN.	A: O/P-FG > <u>50MOhms</u> I/P-O/P > <u>50MOhms</u> I/P-FG > <u>50MOhms</u>	P
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 sec (10mA CUT-OFF) I/P - FG: 1500VAC/ 1 sec (10mA CUT-OFF) O/P - FG : 500VAC/1sec (10mA CUT-OFF)	A: I/P-O/P : <u>3.38mA</u> I/P-FG : <u>3.52mA</u> O/P- FG : <u>1.93mA</u>	P
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:25.4°C BURN-IN DURATION : 1.33 hrs	A: NON BREAK	P
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:80 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-8.5°C 2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:45.1°C 3.ACCELERATED LIFE TEST I/P:267VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85°C AMBIENT HUMIDITY:95%	AFTER 2 hrs POWER ON <u>OK</u> AFTER 14 hrs NON BREAK AFTER 3.5 hrs NON BREAK	P

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19	TEMPERATURE RISE TEST Trise OF PARTS	I/P :230VAC AFTER 1.33 hrs BURN-IN O/P :FULL LOAD TA:25.4°C <table><tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>Trise</th></tr><tr><td>BD1</td><td>BRIDGE DIODE</td><td>55.1°C</td><td>29.7°C</td></tr><tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>78.3°C</td><td>52.9°C</td></tr><tr><td>T1</td><td>MAIN TRANSFORMER COIL</td><td>68.1°C</td><td>42.7°C</td></tr><tr><td>D4</td><td>O/P DIODE</td><td>94.1°C</td><td>68.7°C</td></tr><tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>45.8°C</td><td>20.4°C</td></tr><tr><td>C22</td><td>O/P FILTER CAPACITOR</td><td>74.1°C</td><td>48.7°C</td></tr><tr><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>75.4°C</td><td>50°C</td></tr><tr><td>D1</td><td>CLAMP DIODE</td><td>92.8°C</td><td>57.4°C</td></tr><tr><td>LF1</td><td>LINE FILTER</td><td>49°C</td><td>23.6°C</td></tr></table>	POSITION	P/N	TEMP	Trise	BD1	BRIDGE DIODE	55.1°C	29.7°C	Q1	MAIN TRANSISTOR	78.3°C	52.9°C	T1	MAIN TRANSFORMER COIL	68.1°C	42.7°C	D4	O/P DIODE	94.1°C	68.7°C	C5	I/P FILTER CAPACITOR	45.8°C	20.4°C	C22	O/P FILTER CAPACITOR	74.1°C	48.7°C	T1	MAIN TRANSFORMER CORE	75.4°C	50°C	D1	CLAMP DIODE	92.8°C	57.4°C	LF1	LINE FILTER	49°C	23.6°C		* NOTE1
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20	LIFE CYCLE	SUPPOSE C22 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc22:73.7°C Life: 23966 hrs I/P:230VAC O/P:FULL LOAD Ta:40°C Tc22:81.9°C Life: 13575 hrs		P																																								
21	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	FUSE :4A/250VAC GFE. BRIDGE DIODE :LT KB408G. LINE FILTER :LS TF-484. TRANSFOMER :LS TF-461 POWER SWITCHER :K2545 OUTPUT DIODE :D83-004. OUTPUT CAPACITOR :ELNA 1200uF/16V , 105°C, RJH INPUT CAPACITOR :HITACHI 150uF/400V,85°C P.C.B :PS-65,CEM-1 2 OZSS 127mm x 76.2mm																																										
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																																								
971220	PS-65	NOTE1:WORKING TEMPERATURE>=40°C, OUTPUT SHOULD DERATING	H.C.LIOU	Max Lin																																								

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